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Patent Claims

1. A turbine, in particular a gas turbine, which has at least four stages of successively arranged turbine blades and vanes, with a stage in each case being formed by a row of rotor blades and a row of guide vanes, characterized in that in that at least the fourth row of rotor blades (V4) includes rotor blades (16) in which at least 40% by volume of the material has a density of at most 4 g/cm^3 , so that the mass is significantly reduced compared to a metallic rotor blade, in that the rotor blades (16) have a metallic root part (34), and in that the minimum length of the rotor blades (16) is 50 cm.
2. The turbine as claimed in claim 1, characterized in that the rotor blade (16) is in each case inserted into a metallic rotor disk (25).
3. The turbine as claimed in claim 1, characterized in that the rotor blade (16) in each case has a metallic core (31) which is surrounded by ceramic (39).

4. The turbine as claimed in claim 3, characterized in that the metallic core (31) is formed at least in part from a metallic foam.
- 5 5. The turbine as claimed in claim 1, characterized in that the ceramic has a protective layer (36).
6. The turbine as claimed in claim 1, characterized in that the length of the rotor blade (16) is at least
10 65 cm.
7. The turbine as claimed in claim 1, characterized in that the rotor blade (16), at least beyond 80% of the length (L) of the main blade section (28) in the
15 radial direction (19), consists exclusively of ceramic (39).
8. The turbine as claimed in claim 1, characterized in that the rotor blade (16) has a metallic skeleton
20 (40) into which ceramic parts (39) are introduced.

9. The turbine as claimed in claim 1, characterized in that the material with the density of at most 4 g/cm³ is a ceramic or a glass.
- 5 10. The turbine as claimed in claim 1, characterized in that the material with the density of at most 4 g/cm³ is a carbon-containing material.
- 10 11. The use of a turbine blade having at least 40% by volume of the material formed from ceramic which has a density of at most 4 g/cm³, with a minimum length of 50 cm, at least in the fourth row of a rotor blade ring (V4) of a turbine (41) for reducing the mass of a turbine blade (16) compared to a metallic rotor blade.